DRAFT APRIL 2016 CONFORMITY ANALYSIS ON THE DRAFT FY 2017-2021 MAG TRANSPORTATION IMPROVEMENT PROGRAM AND DRAFT AMENDMENT TO THE 2035 MAG REGIONAL TRANSPORTATION PLAN

The Maricopa Association of Governments is conducting consultation on the Draft April 2016 Conformity Analysis, the Draft FY 2017-2021 MAG Transportation Improvement Program (TIP), and a Draft Amendment to the 2035 MAG Regional Transportation Plan (RTP). The Draft April 2016 Conformity Analysis indicates that the Draft TIP and the Draft Amendment to the RTP satisfies the criteria specified in the federal transportation conformity rule for a conformity determination. A finding of conformity is therefore supported.

The federal conformity regulations at 40 CFR Parts 51 and 93 specify the criteria and procedures for conformity determinations for transportation plans, programs, and projects and their respective amendments. Under the federal transportation conformity rule, the principal criteria for a determination of conformity for transportation plans and programs are: (1) the TIP and Regional Transportation Plan must pass an emissions budget test with a budget that has been found to be adequate or approved by the U.S. Environmental Protection Agency (EPA) for transportation conformity purposes, or an interim emissions test; (2) the latest planning assumptions and emissions models specified for use in air quality implementation plans must be employed; (3) the TIP and Regional Transportation Plan must provide for the timely implementation of transportation control measures (TCMs) specified in the applicable air quality implementation plans; and (4) consultation.

A conformity determination for the FY 2014-2018 MAG Transportation Improvement Program and 2035 MAG Regional Transportation Plan for the Maricopa County nonattainment and maintenance areas was made by the Federal Highway Administration and Federal Transit Administration on July 9, 2015. The latest conformity determination for the FY 2014-2018 MAG Transportation Improvement Program and 2035 MAG Regional Transportation Plan for the Pinal County PM-10 and PM-2.5 nonattainment areas was made by the Federal Highway Administration and Federal Transit Administration on April 27, 2016.

The results of the regional emissions analysis for the Draft 2017-2021 MAG TIP and Draft Amendment to the 2035 RTP for the Maricopa nonattainment and maintenance areas are described below and in Table 1. The results of the regional emissions analysis for the Pinal County PM-10 and PM-2.5 nonattainment areas are described below and in Table 2. Also, on September 10, 2013, EPA advised that MAG should include in conformity analyses the budgets from submitted plans, so that an adequacy finding on a submitted budget does not interfere with the conformity process. Table 3 includes the conformity test results using the budget from the Arizona Department of Environmental Quality 2015 West Pinal Moderate PM-10 Nonattainment Area State Implementation Plan (SIP) that was submitted to EPA on December 21, 2015.

Maricopa Nonattainment and Maintenance Areas Regional Emissions Analysis

For the Maricopa nonattainment and maintenance areas, the Draft 2017-2021 MAG TIP and the Draft Amendment to the 2035 MAG Regional Transportation Plan must pass the emissions budget tests with budgets that have been found to be adequate or approved by the EPA for transportation conformity purposes. The latest MAG transportation and air quality models, including EPA's MOVES2014a, were utilized in the regional emissions analysis to assess the estimated emissions from the TIP and Amendment to the RTP.

The modeling results indicate that for each pollutant and each modeled year the regional emissions from the TIP and 2035 MAG Regional Transportation Plan are less than the motor vehicle emissions budgets for carbon monoxide (CO), eight-hour ozone precursors (volatile organic compounds and nitrogen oxides), and particulate

matter (PM-10) in the Maricopa nonattainment and maintenance areas. The regional emissions analysis was conducted for carbon monoxide and PM-10 for the years 2015, 2025, and 2035 and for the ozone precursors of volatile organic compounds and nitrogen oxides for the years 2017, 2025, and 2035.

On March 9, 2005, EPA published the final rule approving the MAG 2003 Carbon Monoxide Maintenance Plan and 2015 budget of 662.9 metric tons per day, effective April 8, 2005. The year 2015 was modeled since it is a maintenance year in the MAG 2003 Carbon Monoxide Maintenance Plan and is within the timeframe of the 2035 MAG Regional Transportation Plan. Also, on March 3, 2016, EPA published the final rule approving the MAG 2013 Carbon Monoxide Maintenance Plan and 2025 budget of 559.4 metric tons per day, effective April 4, 2016. The year 2025 was modeled since it is a maintenance year in the MAG 2013 Carbon Monoxide Maintenance Plan and an intermediate year that meets the federal conformity rule requirement that horizon years be no more than ten years apart. The analysis year 2035 was modeled because it is the last year of the RTP. For carbon monoxide, the total regional vehicle-related emissions for the analysis year 2015 is projected to be less than the approved emissions budget of 662.9 metric tons per day and the total regional vehicle-related emissions for the analysis years 2025 and 2035 are projected to be less than the 2025 budget of 559.4 metric tons per day. The applicable conformity test for carbon monoxide is therefore satisfied.

On June 13, 2012, EPA published the final rule approving the MAG 2007 Eight-Hour Ozone Plan, including the 2008 emissions budgets for volatile organic compounds (VOC) of 67.9 metric tons per day and nitrogen oxides (NOx) of 138.2 metric tons per day, effective July 13, 2012. The year 2017 is the attainment year for moderate areas under the 2008 eight-hour ozone standard and is within the timeframe of the conformity determination. Emissions for VOC and NOx are interpolated for 2017 using the 2015 and 2018 emissions derived from the latest 2015 and 2018 traffic assignments. On September 17, 2014, EPA published a final rule approving the MAG 2009 Eight-Hour Ozone Maintenance Plan, including the 2025 emissions budgets for VOC of 43.8 metric tons per day and NOx of 101.8 metric tons per day, effective October 17, 2014. The year 2025 was modeled for VOC and NOx since EPA has approved the 2025 VOC and NOx budgets. The analysis year 2035 was modeled because it is the last year of the RTP. For VOC, the total regional vehicle-related emissions for the ozone nonattainment area for analysis year 2017 is projected to be less than the approved 2008 emissions budget of 67.9 metric tons per day, and the emissions for analysis years 2025 and 2035 are projected to be less than the approved 2025 emissions budget of 43.8 metric tons per day. For NOx, the total regional vehicle-related emissions for the ozone nonattainment area for analysis year 2017 is projected to be less than the approved 2008 emissions budget of 138.2 metric tons per day, and the emissions for analysis years 2025 and 2035 are projected to be less than the approved 2025 emissions budget of 101.8 metric tons per day. The applicable conformity tests for eight-hour ozone are therefore satisfied.

On June 10, 2014, EPA published the final rule approving the MAG 2012 Five Percent Plan for PM-10 and the 2012 emissions budget of 54.9 metric tons per day, effective July 10, 2014. The years 2015 and 2025 were modeled for PM-10 since these are intermediate years that meet the federal conformity requirement that analysis years be no more than ten years apart. The analysis year 2035 was modeled because it is the last year of the RTP. For PM-10, the total vehicle-related emissions for the analysis years of 2015, 2025, and 2035 are projected to be less than the approved 2012 emissions budget of 54.9 metric tons per day. The conformity test for PM-10 is therefore satisfied. In addition, on July 25, 2002, EPA published a final rule approving the Revised MAG 1999 Serious Area PM-10 Plan, effective August 26, 2002. A comparison of the conformity test results using the 2006 budget from the Revised MAG 1999 Serious Area Particulate Plan for PM-10 indicates that the total vehicle-related emissions for 2015, 2025, and 2035 also meet this budget. On July 29, 2014, the Arizona Center for Law in the

Public Interest filed a lawsuit against EPA to challenge the approval of the MAG 2012 Five Percent Plan for PM-10. The case is still pending. Consequently, the conformity test using the budget from the approved Revised MAG 1999 Serious Area Particulate Plan is also included.

Pinal County Nonattainment Areas Regional Emissions Analysis

For the Pinal County nonattainment areas, there are no adequate or approved motor vehicle emissions budgets for conformity. Therefore, the conformity interim emissions tests were applied. In selecting analysis years, the transportation conformity rule indicates that the years must be no more than ten years apart, the first year must be no more than five years beyond the year in which the conformity determination is being made, and the last year must be aligned with the transportation plan. The last year of the Sun Corridor RTP is 2040 and the last year of the MAG RTP is 2035. Therefore, the baseline and action tests were conducted for PM-10 for the West Pinal PM-10 Nonattainment Area and for PM-2.5 and NOx for the West Central Pinal PM-2.5 Nonattainment Area for the analysis years of 2020, 2030, 2035 and 2040. For each test, the required emissions estimates were developed using the transportation and emission modeling approaches required under the federal transportation conformity rule.

The Maricopa Association of Governments and the Sun Corridor Metropolitan Planning Organization have coordinated on the inputs to the transportation model as well as consultation on the conformity analysis. Both the MAG Metropolitan Planning Area Boundary and the Sun Corridor Metropolitan Planning Area Boundary include portions of the West Pinal PM-10 Nonattainment Area and West Central Pinal PM-2.5 Nonattainment Area. Both nonattainment areas are covered by the boundaries of the two metropolitan planning organizations. Since the Sun Corridor MPO is also proposing an Amendment to the Sun Corridor MPO FY 2016-2025 TIP and RTP 2040, transportation conformity is required to be demonstrated for both nonattainment areas by both metropolitan planning organizations.

For PM-10, the projected emissions for the action scenario are not greater than the projected emissions for the baseline scenario for each of the years analyzed: 2020, 2030, 2035 and 2040. Since the PM-10 emissions predicted for the action scenarios are not greater than the PM-10 emissions predicted for the baseline scenarios, the conformity interim emission test is satisfied. It is also reasonable to expect the action emissions would not exceed the baseline emissions for the time periods between the analysis years. In addition, Table 3 includes the conformity test results using the budget from the 2015 West Pinal Moderate PM-10 Nonattainment Area SIP that was submitted to EPA on December 21, 2015. On September 10, 2013, EPA advised that MAG should include in conformity analyses the budgets from submitted plans, so that an adequacy finding on a submitted budget does not interfere with the conformity process. A comparison of the conformity test results using the 2018 budget from the 2015 West Pinal Moderate PM-10 Nonattainment Area SIP indicates that the total vehicle-related emissions for 2018, 2020, 2030, 2035, and 2040 also meet this budget.

For PM-2.5, the projected emissions for the action scenario are not greater than the projected emissions for the baseline scenario for each of the years analyzed: 2020, 2030, 2035 and 2040. Since the PM-2.5 emissions predicted for the action scenarios are not greater than the PM-2.5 emissions predicted for the baseline scenarios, the conformity interim emission test is satisfied. It is also reasonable to expect the action emissions would not exceed the baseline emissions for the time periods between the analysis years.

For NOx, the projected emissions for the action scenario are not greater than the projected emissions for the baseline scenario for each of the years analyzed: 2020, 2030, 2035 and 2040. Since the NOx emissions predicted for the action scenarios are not greater than the NOx emissions predicted for the baseline scenarios,

the conformity interim emission test is satisfied. It is also reasonable to expect the action emissions would not exceed the baseline emissions for the time periods between the analysis years.

Latest Planning Assumptions and Emissions Models

In accordance with federal conformity requirements, the latest planning assumptions and emissions models specified for use in air quality implementation plans were employed for this conformity determination. The latest planning assumptions used for this conformity determination are consistent with the January 2014 MAG Conformity Analysis for the FY 2014-2018 Transportation Improvement Program and the 2035 Regional Transportation Plan and the January 2014 Sun Corridor Metropolitan Planning Organization 2014 Conformity Analysis, with the following exceptions:

1. On October 7, 2014, EPA published a notice of availability of the MOVES2014 mobile source emissions model which began a two-year grace period that ends on October 7, 2016, after which MOVES2014 is required to be used for transportation conformity. EPA released a revised version, MOVES2014a, on November 4, 2015. The November 2015 version of MOVES2014a is used for this regional emissions analysis. MAG has also developed a MOVESLink2014 model that coordinates the TransCAD traffic assignment output with the MOVES2014a model.

2. The most recently available vehicle registration data was used in this conformity analysis. July 2015 vehicle registration data was obtained from the Arizona Department of Transportation (ADOT) for both Maricopa County and Pinal County.

3. MOVES2014a "Regulatory Class" output was used with the July 2015 vehicle registration data to estimate VMT distributions by weight-based vehicle class for each conformity traffic assignment. These vehicle weights were used to calculate the paved road PM-10 emissions in the Maricopa PM-10 Nonattainment Area for the budget analysis in 2015, 2025, and 2035 and in the Pinal PM-10 Nonattainment Area for the action and baseline scenarios in 2020, 2030 and 2040. The 2035 paved road emissions estimates were interpolated using the 2030 and 2040 values.

4. The latest transportation projects included in the Draft FY 2017-2021 MAG TIP and 2035 RTP, as well as projects in the Sun Corridor MPO FY 2016-2025 TIP and RTP 2040, were coded in the 2020, 2030, and 2040 traffic assignments used to estimate the action scenario emissions. The 2035 action scenario emissions were interpolated using the 2030 and 2040 values.

The traffic network coded in the 2020, 2030 and 2040 traffic assignments used to estimate baseline emissions for the Pinal PM-10 and PM-2.5 nonattainment areas includes regionally significant highways open to traffic, as well as transit service in operation, by December 31, 2015. In accordance with Section 93.119(h) of the EPA conformity regulations, the baseline network also includes all regionally significant projects in the Pinal PM-10 Nonattainment Area, regardless of funding source, which are currently under construction or undergoing right-of-way acquisition by April 1, 2016; are MAG TIP or Sun Corridor MPO projects coded in the 2015 traffic assignment used in the prior 2016 conformity analysis, but are no longer included in the 2015 assignment to be used in the April 2016 conformity analysis; or have completed the National Environmental Policy Act (NEPA) process. The 2035 baseline emissions estimates were interpolated using the 2030 and 2040 values.

Emission reduction credit for projects in the Draft FY 2017-2021 TIP and the 2035 Regional Transportation Plan that pave unpaved roads in the Pinal PM-10 Nonattainment Area has been assumed in this conformity analysis for the 2020, 2030, 2035 and 2040 action scenarios. In addition, emission reductions for paving projects in the Sun

Corridor MPO FY 2016-2025 TIP and Regional Transportation Plan 2040 are applied to the 2020, 2030, 2035 and 2040 action scenarios.

All analyses were conducted using the latest planning assumptions and emissions models in force at the time the conformity analysis began on April 1, 2016. A summary of the latest planning assumptions, including population, employment, and vehicle registrations data used in the regional emissions analysis, is provided in Table 4.

Timely Implementation of Transportation Control Measures

In accordance with Section 93.113, the Draft FY 2017-2021 MAG TIP and Amendment to the 2035 MAG Regional Transportation Plan continue to provide for the timely completion or implementation of the TCMs in the applicable air quality implementation plans, and no schedule difficulties have been identified. In addition, nothing in the TIP and RTP interferes with the implementation of any transportation control measures in the applicable air quality implementation plans, and priority is given to TCMs.

Consultation

In compliance with federal and state rules, MAG is required to provide reasonable opportunity for consultation with state air and transportation agencies, local agencies, U.S. Department of Transportation, Environmental Protection Agency, and other interested parties. A 30-day consultation period is being provided on the Draft April 2016 Conformity Analysis, the Draft FY 2017-2021 MAG Transportation Improvement Program, and the Draft Amendment to the 2035 MAG Regional Transportation Plan. In addition, an opportunity for public comment will be provided on these draft documents at a public hearing on June 7, 2016. Consultation is concluded by notifying the agencies and other interested parties of any approval action taken by the MAG Regional Council and any comments received during the period of consultation.

TABLE 1.

CONFORMITY TEST RESULTS FOR CO, VOC, NOx, AND PM-10 (METRIC TONS/DAY)
MARICOPA NONATTAINMENT AND MAINTENANCE AREAS

Pollutant	Carbon Monoxide		Eight-Hour Ozone				PM-10	
Year - Scenario	2015 [a]	2025 [b]	2008 [c] VOC	2008 [c] NOx	2025 [c] VOC	2025 [c] NOx	2012 [d]	2006 [e]
Budget Test	662.9	559.4	67.9	138.2	43.8	101.8	54.9	59.7
2015	492.1						40.2	40.2
2017			44.3	69.1				
2025		308.0			28.7	36.7	43.9	43.9
2035		195.3			16.8	22.0	48.5	48.5

a The MAG 2003 Carbon Monoxide Maintenance Plan established a 2015 emissions budget. The onroad mobile source emissions correspond to a Friday in December episode day conditions.

b The MAG 2013 Carbon Monoxide Maintenance Plan established a 2025 emissions budget. The onroad mobile source emissions correspond to a Friday in December episode day conditions.

c The MAG 2007 Eight-Hour Ozone Plan established 2008 emissions budgets for volatile organic compounds (VOCs) and nitrogen oxides (NOx). Also, the MAG 2009 Eight-Hour Ozone Maintenance Plan established 2025 emissions budgets for VOCs and NOx. The onroad mobile source emissions correspond to a Thursday in June episode day conditions.

d The MAG 2012 Five Percent Plan for PM-10 established a 2012 emissions budget corresponding to an average annual day.

e The Revised MAG 1999 Serious Area Particulate Plan for PM-10 established a 2006 emissions budget corresponding to an average annual day. A comparison of the conformity test results using the budget from the EPA approved Revised MAG 1999 Serious Area Particulate Plan for PM-10 is also provided. On July 29, 2014, the Arizona Center for Law in the Public Interest filed a lawsuit against EPA to challenge the EPA approval of the MAG 2012 Five Percent Plan for PM-10. The case is still pending. Consequently, the conformity test using the budget from the approved Revised MAG 1999 Serious Area Particulate Plan is also included.

TABLE 2.
CONFORMITY INTERIM EMISSION (ACTION/BASELINE) TEST RESULTS
(KILOGRAMS/DAY)
PINAL COUNTY PM NONATTAINMENT AREAS

	PM-10 Nonattainment Area	PM-2.5 Nonattainment Area	
Pollutant	PM-10	PM-2.5	NOx
2020			
- Action	112,019	25	1,040
- Baseline	113,972	26	1,095
2030			
- Action	124,159	19	824
- Baseline	126,231	23	1,042
2035			
- Action	131,205	23	900
- Baseline	133,278	27	1,286
2040			
- Action	138,907	27	977
- Baseline	140,840	31	1,529

TABLE 3.

CONFORMITY TEST RESULTS USING THE SUBMITTED BUDGET
FOR PM-10 (TONS/YEAR) FOR INFORMATIONAL PURPOSES
PINAL COUNTY NONATTAINMENT AREA

Pollutant	PM-10
Year - Scenario	2018 [a]
Budget Test [b]	27,987.1
2018	25,846.1
2020	24,622.7
2030	21,005.3
2035	24,083.1
2040	27,368.5

a The 2015 West Pinal Moderate PM-10 Nonattainment Area State Implementation Plan (SIP), submitted to EPA by the Arizona Department of Environmental Quality (ADEQ) on December 21, 2015, establishes a 2018 conformity emissions budget of 27,987.1 tons per year. On September 10, 2013, EPA advised that MAG should include in conformity analyses the budgets from submitted plans, so that an adequacy finding or approval of a submitted budget does not interfere with the conformity process.

b The vehicle exhaust, tire wear and brake wear emissions are calculated by applying MOVES2014a to the latest versions of the 2018, 2020, 2030 and 2040 traffic assignments in the West Pinal PM-10 Nonattainment Area (NA). The 2035 exhaust, tire wear and brake wear emissions are estimated by interpolating the 2030 and 2040 values. The reentrained dust emissions from paved roads included in the 2018 conformity budget are increased by applying the growth in vehicle miles of travel (VMT) in the West Pinal PM-10 NA between 2018 and 2020, 2030, 2035 and 2040. The 2018 reentrained dust emissions from public and private unpaved roads are increased by 1.57% per year, which is the annual growth rate between 2008 and 2018 that was used to establish the public and private unpaved road emissions in the 2018 conformity budget. The road construction emissions in the 2018 budget are held constant through 2040. Emission reductions are applied in 2018, 2020, 2030, 2035 and 2040, based on the West Pinal PM-10 Nonattainment Area General Fugitive Dust Rule (FDR), included in Appendix I of the ADEQ 2015 West Pinal Moderate PM-10 NA SIP, that requires 15 miles of unpaved roads with traffic volumes greater than 150 ADT to be paved each year beginning in 2016.

TABLE 4. LATEST PLANNING ASSUMPTIONS FOR MAG CONFORMITY DETERMINATIONS

Assumption	Source	MAG Models	Next Scheduled Update
Population and Employment	Under the Governor's Executive Order 2011-04, official County projections are updated every 3 to 4 years. These official projections are used by all agencies for planning purposes. Following the release of the 2010 U.S. Census data, the Arizona Department of Administration (ADOA) prepared a new set of Maricopa County projections in December 2012. MAG developed a set of employment projections for Maricopa County that are consistent with the ADOA population projections and also prepared subcounty population and employment projections. The MAG Regional Council approved the subcounty socioeconomic projections in June 2013. In addition, Central Arizona Governments (CAG) approved the Pinal County subcounty socioeconomic projections, based on the ADOA Pinal County projections, in June 2013.	AZ-SMART (UrbanSim/ OPUS)	Under the Governor's Executive Order 2011-04, official county socioeconomic projections will be developed by the Arizona Department of Administration (ADOA). It is anticipated that ADOA will complete the county level projections in 2015 and MAG will prepare subcounty socioeconomic projections for adoption by the MAG Regional Council within six months after receipt of the ADOA county level projections.
Traffic Counts	The highway models were validated in 2013 for the 2011 base year, using approximately 3,300 traffic counts collected in 2011.	TransCAD	Region-wide traffic counts are typically collected by MAG every 2-4 years, if funds are available.
Vehicle Miles of Travel	The passenger travel demand models were calibrated in 2012-2013 using data from the 2008-2009 home interview survey, 2009 Transearch data, 2010-2011 regional transit on-board survey, 2011 Truck GPS data, and 2012 Airport and ASU surveys. The recalibration effort included a complete update of the regional travel demand model based on the relevant data sets listed above. Trip generation and trip distribution were recalibrated based on the 2008-2009 National Household Travel Survey Arizona Add-On sample and 2006 - 2009 American Community Survey and Public Use Microdata Sample data sets. Mode choice was recalibrated based on the 2010 on-board survey. The truck model was recalibrated based on the new 2009 Transearch data and 2011 Truck GPS data from ATRI. Special generator sub-models were recalibrated based on 2012 regional airports and ASU travel surveys. The external travel model was recalibrated in 2011 based on the 2008 external travel study. Volume-delay functions were recalibrated in 2012-2013 based on the 2011 commercial speed data. The overall base year for the recalibrated and validated model is 2011.	TransCAD	MAG has completed a major update, development and recalibration of the regional transportation model in FY 2013. The FY 2014 Unified Planning Work Program (UPWP) includes funding for the initiation of the next series of travel surveys in calendar years 2014-2016. These surveys will form a foundation for the next round of model development and updates. Various commercial data sources will be used to maintain and incrementally update the models in between the major recalibration updates.
Speeds	The highway models were validated using 49 million traffic speed records purchased from NOKIA for calendar year 2011.	TransCAD	Travel speed studies are conducted periodically to validate the transportation models. MAG has also purchased commercial speed data for future estimation and model calibration purposes.
Vehicle Registrations	July 2015 vehicle registrations were provided by ADOT.	MOVES2014a	When newer data become available from ADOT.
Implementation Measures	Latest implementation status of commitments in prior SIPs.	N/A	Updated for every conformity analysis.